

CENTRAL INTELLIGENCE AGENCY
INFORMATION REPORT

COUNTRY Hungary
SUBJECT The Technical University in Budapest/Chemical Research and Industry

DATE DISTR. 4 Jan 54
NO. OF PAGES 5

50X1 PLACE ACQUIRED 50X1 NO. OF ENCLS. (LISTED BELOW) 50X1
DATE ACQUIRED 50X1 SUPPLEMENT TO REPORT NO.
DATE OF INFORMATION:

THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES, WITHIN THE MEANING OF TITLE 18, SECTIONS 793 AND 794, OF THE U.S. CODE, AS AMENDED. ITS TRANSMISSION OR REVELATION OF ITS CONTENTS TO OR RECEIPT BY AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW. THE REPRODUCTION OF THIS FORM IS PROHIBITED.

THIS IS UNEVALUATED INFORMATION

50X1
50X1
50X1

1. In the department of inorganic chemistry at the Technical University, Budapest, lectures were given in general and inorganic chemistry. In addition, the chemical engineering students received instruction in theoretical and practical chemical analysis. Instruction at the University required the major portion of the faculty members' time because during the 1930's the number of students tripled without a corresponding increase in the number of instructors. I also systematically followed analytical procedures published in current literature. My interest was in the practical application of new methods

The chemistry department also published, in the students' handbooks, material on general and inorganic chemistry.

2. In applied research the following were the more important topics: production of certain silica gels, quantitative and qualitative analysis of their sorption, electrochemical production of bauxite, wet treatment of bauxite for the production of silicic bauxite, enamel research, and problems of glass manufacture. Papers on these topics were published, in part, in Hungarian and in German.

CLASSIFICATION CONFIDENTIAL

STATE	X	Navy	X	DISTRIBUTION				ORR	X
ARMY	X	Air	X			SRD/SI	EV C/SI	X BR/BCD	X

CONFIDENTIAL/

-2

3. Research work was considerably handicapped by the inadequacy of laboratory equipment. The equipment was not only insufficient, but also largely obsolete. A large portion of energy and time was devoted to the procurement of laboratory equipment, which sometimes required several years. We were finally able to obtain a modern autoclave, thermostat, milling equipment, a large microscope, and modern scales. We lacked optical instruments such as a spectrophotometer, etc; smelting furnace, etc. The small allowance appropriated to the department was used primarily for the purposes of instruction. The laboratory, built to our own plans, was equipped with: direct current, central vacuum and compressed air, evaporating vats, central gas generators, electric drying and heating furnaces, a reading room, a library, and the necessary chemicals. By comparison, the equipment of the Munich Technical University Laboratory, both in quantity and quality, was very inferior to that of the Budapest Technical University. I understand little of this equipment survived the siege of Budapest.
4. Most of the equipment was imported from Germany. However, prior to World War II, Hungary had precision scale and instrument factories as well as chemical-glass manufacturers whose products equaled those of the American Pyrex or the German Schott and Gen. Jena.
5. Chemicals for the most part were received from the German Merck and Kahlbaum enterprises. Just prior to World War II Hungarian firms began to compete successfully in this field. The "Hungaria" and the Bayer Chemical Works produced chemicals of adequate purity for analytical purposes primarily, from domestic raw materials. Certain basic chemicals, which were consumed in quantity by all chemical laboratories, could be obtained from Hungarian producers. These chemicals included: sulphuric acid, hydrochloric acid, nitric acid, ammonium hydroxide, liquid air, carbon dioxide, sulphur dioxide, liquid ammonia, and hydrogen peroxide. Compressed gases were also available such as: oxygen, hydrogen, and nitrogen.
6. The Budapest Technical University was the only technical university in Hungary. A few years prior to World War II, the Budapest Economic University, and the Sopron Mining, Metallurgical, and Forestry Engineering University were consolidated with the Budapest Technical University. After World War II, the three universities were again separated.
7. The Technical University was composed of two schools: the school of engineering and architectural engineering, and the school of mechanical and chemical engineering. In addition there was a separate school of economics. Each school was headed by a dean who was elected for a period of one year by the faculty of the rank of the full professor. The outgoing dean became the chairman of his faculty and supervised its activities. The Technical University was headed by a rector who was elected for a period of one year and who exercised the traditional autonomous privileges of the university. The privileges included the election of professors and the preparation of the curricula. They also ensured the freedom of instruction and the independence of the faculties from the political course of the government. It may be assumed, of course, that this independence has been destroyed by the present regime.
8. At the end of 1944 the departments and the heads were as follows:

General Chemistry	Jeno Plank
Inorganic Chemistry	Laszlo Putnoky
Organic Chemistry	Geza Zemplen
Chemical Technology	Jozsef Varga
Agricultural Chemical Technology	Geza Binder-Kotsba
Soil Science	Laszlo Kotzmann
Electrochemistry	Bela Lanyi
Physics and Physical Chemistry	Istvan Naray-Szabo
Mineralogy	Aladar Vendl
Food Chemistry	Mihaly Vuk
Textile Chemistry	Zoltan Csuros

CONFIDENTIAL

CONFIDENTIAL/

-3-

Other subjects such as mathematics, chemical industrial engineering, drafting, economics, and law were taught by professors from other faculties. Numerous special, non-mandatory subjects were taught by docents. 50X1

9. Chemical engineering students received both theoretical and practical instruction. Each laboratory was, as a rule, headed by an assistant professor. In addition there was a staff of instructors and assistant instructors. Until the end of World War II, diplomas issued by the faculty of chemical engineering were comprehensive; that is, the course of instruction was not specialized as in the faculty of mechanical engineering where students specialized in electrical engineering, heat engineering, or agricultural engineering fields of mechanical engineering. This was due to the fact that the undeveloped state of Hungary's chemical industry made excessive specialization unnecessary. The chemical engineers left the Technical University with a good foundation in theory and practice and acquired specialized knowledge without difficulty in the industry in which they found jobs.
10. The students were required to take tests in all mandatory subjects and, after performing the required laboratory experiments, a test had to be taken in that field also. In addition to the tests, comprehensive examinations were mandatory at the end of the fourth, sixth, and ninth semesters. The chemical engineering course was divided into nine semesters (4½ years). Comprehensive examinations in chemistry, chemical analysis, physics, and physical chemistry were taken after the fourth semester; organic chemistry, manufacture of organic products, and mineralogy after the sixth; and chemical technology, agricultural chemical technology and electrochemistry after the ninth. Prior to the third comprehensive examination, each student was required to prepare a dissertation in the field of one of the subjects of the last comprehensive examination. After the examination, the student received a diploma in Chemical Engineering. The student was under the guidance of a professor assigned by the department head during his course of study.
11. The course was rigid. The lectures and laboratory exercises were scheduled for the entire semester and deviations were not permitted. Attendance at the lectures were checked by frequent roll calls, and a student who missed several laboratory exercises was usually dropped. If the student did not complete the prescribed laboratory exercises, he had to repeat the entire semester.
12. Students were admitted to the Technology University only after the completion of four classes of elementary and eight classes of high school. They also had to produce a certificate of Regent's examination (Matura). The demands made on the students were very great. No one could acquire a diploma without systematic, diligent, and devoted work. The Technology University had a notorious reputation for the discipline and diligence of its students. It was well known for the high level of instruction and the thorough training of its graduates. 50X1
13. Diplomas in chemistry, but not in chemical engineering, were issued also by the universities of science throughout Hungary. Holders of such diplomas were also employed in industry but primarily in laboratories or other non-production jobs.
14. My knowledge of the department heads, based on memory, is given in the following sketches:

CONFIDENTIAL

...WHILE HE WAS ...
...and of his strong ...
...thought to the dangers of ...
...could save Hungary from the ...
...of the Technology University. ...
...scientific technical education ...
...he kept his professional ...

50X1

Page Denied

CONFIDENTIAL/

-5-

and equipment of the Western industries. It was impossible to undertake large- 50X1 scale research projects because Western industries had vastly superior capital resources. The large chemical concerns, resulting from consolidation or realignment of smaller firms set up research laboratories, but they did not compare with the large research laboratories of the Western world. Examples are: the Hungaria Chemical Works, Budapest; the Nitro Chemical Works, Pet; and the Hydroxygen Works, Budafok. The large chemical concerns were largely occupied with the problems of their respective plants and failed to publish their discoveries.

17. The research work conducted at the scientific institutes, universities, state experimental stations, and other laboratories was of practical value primarily in those cases in which the sites of laboratory and plant coincided. For example: pharmaceutical, fermentation, and food industries, and in certain organic products.
18. State or industrial subsidiaries (the Szechenyi Scientific Society, the National Scientific Fund, etc.) enabled the scientific institutions to undertake research projects which required larger capital expenditures. In the field of inorganic chemistry, such projects were designed primarily to promote the processing and utilization of domestic raw materials and the subsidies were continued only as long as the respective institute reported satisfactory research results. Projects undertaken in the field of inorganic chemistry concerned: bauxite processing, aluminum production, manganese ores, crude oil, natural gas, glass and porcelain products, Hungarian iron ores, and the flotation treatment of ores, etc. Such research activity had a promising beginning but its development was checked by World War II.
19. Theoretical research activity conducted in the scientific institutions required relatively smaller expenditures. In this field, the Hungarian scientists maintained close contacts with the foremost foreign researchers. This was evidenced by the numerous Hungarian papers published in major US, German and English scientific journals. These papers dealt with a multitude of topics.

-end-

LIBRARY SUBJECT & AREA CODES

831.2	37M
831.6	37M
614.04	37M
632.04	37M
613.04	37M
615.04	37M
601.51	37M

CONFIDENTIAL/